what different principle governs. A license tax for the purpose of raising revenue may not be imposed by any municipality upon *any* business, trade or profession unless the State Legislature has by statute expressly delegated to the particular municipality concerned the power to impose such a tax. There are a number of cities and towns in the State which have never received authority from the Legislature to impose license taxes for the purpose of raising revenue. On the other hand, by statute, all of the cities of the sixth class are authorized to raise revenue by means of imposing license taxes upon any business, trade or profession. Likewise, the Legislature has approved a number of city charters which contain specific authorizations to license for the purpose of raising revenue. It is impractical here to attempt to enumerate all of the California cities and towns which have received legislative authorization and those which have not.

If a particular municipality has been authorized by the Legislature to impose license taxes for revenue-raising purposes upon all business, trades and professions, then in that event a municipal ordinance imposing a license tax upon physicians is valid and enforceable.

In determining whether or not a particular municipal ordinance imposing a license tax upon physicians is or is not enforceable as against the physicians in the community, one must be able to answer two separate questions: (1) Is the ordinance imposing the tax a revenue-raising measure or is its sole purpose that of defraying the cost of inspection and regulation; and (2) If it is a revenue-raising measure, has the Legislature conferred specific authority upon the municipality to impose license taxes upon the professions for revenue purposes?

* * *

Expert Witnesses in Malpractice Cases May Not Be Required to Give a Yes or No Answer to an Hypothetical Question and Must Be Allowed to Explain Each Answer.

On November 7, 1936, the District Court of Appeal for the Second Appellate District decided the case of *McGuire* vs. *Dr. Marion W. Baird,* 87 C. A. D. 436. From the opinion of the court it appears that the case was a malpractice action against a physician and that during the course of the trial one of the attorneys propounded a somewhat lengthy hypothetical question to a physician, who had qualified as an expert witness. Upon the insistence of the attorney who had propounded the question the trial court ruled that the witness would have to answer it either "yes" or "no," and that the witness could not give a qualified answer or an explanation of the reasons for his answer. On appeal before the District Court of Appeal, it was held that the trial court committed prejudicial error in refusing to allow the expert witness to qualify his answer and give such explanations therefor as he saw fit.

Inasmuch as it is possible for an attorney so to phrase a lengthy hypothetical question that the witness cannot conscientiously and honestly answer the question either "yes" or "no," but must, in order to tell the truth, qualify his answer and state his reasons therefor, it is important to remember that under the law a physician who is on the witness stand as an expert witness cannot be forced to answer a hypothetical question "yes" or "no" when, in his opinion, an explanation is necessary.

SPECIAL ARTICLES

PARIS EXPOSITION WILL DEVOTE SECTON TO MEDICINE AND SCIENCE

A liberal education in the field of modern medicine and a comprehensive survey of resultant achievements will be one of the many interesting attractions at the Paris 1937 International Exposition.

According to present plans announced by the French High Commissioner, three huge pavilions will be devoted to this unusual display. Special emphasis will be placed on the precise scientific character of modern medicine as compared with the hit-or-miss methods of the nineteenth century. The exhibit which naturally will be of great interest to all members of the medical profession and its allied fields, will be so arranged and displayed as to be easily understood by the layman.

The three great halls, each reverently dedicated to a great name in French medical history, will be devoted to the illustration of the various phases of medicine and its allied sciences. The Claude Bernard Pavilion, so named in honor of the great pioneer in physiology, will contain among many other unique exhibits, a transparent man, illuminated to show the glands, nervous system, and general anatomy. Another of the exhibition halls will be called Laennec Pavilion, to perpetuate that name, noted as a creator of clinical medicine and the inventor of auscultation, which is a method of diagnosis concerned with the sounds produced by the human body. In this building will be shown a remarkable and important collection of instruments, books and relics of nineteenth century medicine. Along with this will be a display of modern medical instruments and equipment, illustrating the advances of the past fifty years in the science of medicine. Such exhibits will be chronologically arranged to demonstrate the steps in medical progress from the dark ages of ignorance, through the enlightenment of experimentation and research, into the brilliancy of modern scientific methods and achievements.

Every branch of medicine will be represented and treatment for certain diseases will be demonstrated in many cases. Moving pictures will be employed to show scientific experiments, research into causes of infection and illness, and methods of treatment. Everything possbile will be done to clarify in the mind of the layman the scientific and technical accomplishments of modern medicine.

In addition to presenting a comprehensive view into medical history and present-day practice, this exhibition will offer a remarkable insight into the probabilities of the medical science of the future. The strides which scientific research is making in the conquest of illness will be demonstrated. Government regulation of sanitation will be stressed in the light of its importance in the fight for world-wide health and happiness and the necessary contribution of industry to the elimination of disease will be emphasized.

Illustrations will clarify the gradual elimination of the age-old barriers between medicine and the allied sciences which have stood in the path of progress since the days of medicine's first crude efforts. The debt to chemistry and physics will be explained, without whose coöperation we would still lack such important curative and diagnostic agents as radium and the x-ray. The endless collaboration of energies working for the benefit of mankind will be described, and civilization's hopes in the never-ending struggle against disease and death will be indicated at the Paris Exposition next May.

NATIONAL SOCIAL HYGIENE DAYS

Plans for the first National Social Hygiene Day, to be held February 3, 1937, are announced by the American Social Hygiene Association of 50 West Fiftieth Street, New York City. On this day, state and community voluntary organizations interested in the control of syphilis and gonorrhea and other social hygiene problems, with the advice and approval of health authorities and the medical and allied professions, are planning to hold meetings all over the United States.

In New York City the American Social Hygiene Association will hold its annual meeting on February 3. Also the Social Hygiene Council of Greater New York will hold its fifth annual regional conference at the Hotel Pennsylvania on the same day. It is expected that public leaders, including Surgeon-General Parran, President Ray Lyman Wilbur of Stanford University, President of the American Social Hygiene Association and former Secretary of the Interior, will speak to these meetings. National agencies and many of their state and community organizations which include social hygiene activities in their yearly programs are planning to participate. It is probable that a nation-wide radio hook-up will provide

addresses of great importance from high government officials and civic leaders in different parts of the country as a climax to the activities of the First National Social Hygiene Day.

There has been definite progress all along the line during the past year in public understanding and support of the campaign against syphilis. Newspapers and magazines are opening their columns to public discussion of this health menace to a greater extent than ever before. Certain important groups, such as the General Federation of Women's Clubs and the National Council of Women, are adopting the fight against syphilis as among their next major efforts in promoting community health. (The women's groups are particularly interested in the elimination of prenatal or congenital syphilis, which, acquired by a child before birth from an infected mother, is responsible for a large share of stillbirths, miscarriages, and defective children, and which is entirely preventable by proper treatment.)

Service luncheon clubs, such as Rotary, Kiwanis, and Lions, have recently been undertaking social hygiene programs. Business leaders are studying the cost to industry from lost time, lowered efficiency and hospitalization, due to syphilis. The large insurance companies are concerned over the unnecessary claims for death and disability due to syphilis. Civic clubs, forums, and town meetings are discussing the diagnosis and treatment of syphilis as a national plague.

It is believed that the direction of united nation-wide attention to this subject in the way that is proposed will help professional and lay community leaders to capitalize and increase this new interest, and consolidate for further advance toward meeting General Parran's challenge to "stamp out syphilis."

MUTATION AND THE ORIGIN OF CANCER

Some years ago Boveri advanced the theory that cancer cells were those in which the tiny microscopic bodies called chromosomes were abnormally distributed. In every normal body cell there is contained a definite fixed number of chromosomes which is characteristic of the species. Thus, in every normal body cell of a man there are forty-eight, and in every normal body cell of a mouse forty of these structures.

Boveri noticed that in certain cancers there was an abnormal distribution of chromosomes, during cell division in many of the cells. As a result of this, there were cells formed in which a great excess of chromosomes occurred. There were also cells formed which were deficient in chromatin material. Boveri looked upon the abnormal distribution as the cause of cancer.

As time passed, evidence against his hypothesis was derived from two sources. The first, of an indirect but interesting nature, came from genetics or the study of heredity. Blakeslee, Belling, and others, working with the jimson weed, Datura, showed that markedly abnormal distribution of chromosomes could be obtained without resulting in anything resembling tumorous or cancerous growth. They further showed that cells or plants in which the distribution of chromatin was asymetrical or unbalanced were distinctly less vigorous and died at a much earlier age than did normal ones. Since cancer is characterized by an immense vitality and growth energy, this evidence did not look at all promising for Boveri's theory.

It was not, however, until workers with tissue culture were able to observe the living and dividing cells of rat and mouse cancer that direct evidence on Boveri's hypothesis could be obtained. In a number of different tumors it was found that cells with asymetrical distribution of chromatin divided much more slowly than the cells in the same tumor which had the normal number of chromosomes. As a result the abnormal cells were certain to leave fewer descendants than were the normal cells. The tumor would, therefore, constantly tend to show a steadily increasing proportion of normal cells and the cause and effect relationship of abnormal chromosome distribution and cancer formation is entirely broken down.

In spite of this fact Boveri did science a great service by providing those who felt that the significant difference between a cancer cell and its normal forebears was some sort of change within the cell itself, a theory that could be actually tested. In the development of the interest which his hypothesis aroused, research workers naturally focused their attention on other biological processes which might possibly serve to explain the nature of the change from a normal to a cancerous cell.

Among the most promising of the tentative hypotheses advanced was that of Tyzzer, who in 1915 pointed out that the change under consideration fulfilled the conditions encountered when a process known as mutation occurred. He recognized frankly that the theory which he suggested was extremely difficult of experimental test, but offered it for what it was worth and to stimulate discussion. This it certainly did, for at intervals during the past twenty years other investigators have independently advanced the same theory.

The term "mutation" means sudden change. It was first given an important rôle in the process of evolution by a Dutch botanist, de Vries, in 1900. De Vries believed that evolution proceeded most commonly by a series of sudden discontinuous variations which were perpetuated by inheritance and were, therefore, essentially permanent.

For some years there was not sufficient knowledge of the process of heredity available to determine what the relationship between the appearance of a mutation and the presence of chromosomal changes might be. Then, by the work of Morgan and his associates and by utilizing the hypothesis of hereditary units suggested by Cuenot, the whole problem began to assume a more integrated and consistent form.

The simplest hereditary units called "determinants" by Cuenot were given a shorter designation, "genes," by Johannsen. They were found by Morgan and his coworkers to be closely associated with the chromosomes and to act as though they were arranged in a linear series in or on the individual chromosomes. Their relationship to one another was shown to be fixed, measurable, and predictable.

Mutation of the sudden and permanent change of these genes became a problem capable of some degree of experimental control and investigation. It was found that certain physical and chemical factors increased the rate at which the sudden changes or mutations occurred. These factors could be varied experimentally. The whole question took on a new and more general importance.

It soon became evident that sudden and permanent changes in the smallest hereditary units or genes were not the only type of mutations which occurred and which could be induced. The work of Blakeslee and Belling, to which reference has already been made, gave clear evidence that whole chromosomes could be doubled or even quadrupled and that, therefore, new numerical chromosome combinations could be made. When this occurred suddenly and was handed down by heredity and conditions of a mutation were fulfilled and the definition of that process had to be extended.

Gradually it became clearer that, between the chromatin material of the cell and its surrounding cytoplasm or cell substance, complicated relationship existed which might be suddenly and permanently disturbed and altered. We do not yet know the relative importance of chromatin and cytoplasm in the origin and perpetuation of these changes. It seems, however, more than possible that in the sudden appearance of one or more changes of this mutational sort may be found the origin of the biological variation in the type of cellular behavior known as cancer.

Such a change or changes might result from any one of a number of influences. The so-called carcinogenic agents, which are almost monthly increasing in number, may be one category of stimulative factors. A group of internal secretions as yet incompletely analyzed, occurring naturally in the body, may provide another source of potential interest as possible mutation-increasing substances. There may be and probably are many others as yet undiscovered roads to increased mutation rate. Cancer research of the future has these problems before it. In the meantime the conception that the cancer change itself